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case with a normal bilaterally symmetrical color pattern. On the distal primary the spot is very indistinct and nearly confined to the inner web where it occupies a space 3 mm. long (measured at the shaft) and 4 mm. from the tip of the feather. Toward the inner margin of the web the spot narrows rapidly and disappears without reaching the edge of the feather. On the outer web there is the faintest possible suggestion of a grayish trace close to the shaft and opposite the spot on the inner web. On the second and third primaries the spots become more distinct and extend nearly to the margin of the inner web. On the third primary the spot is 5 mm. long and 5 mm. from the tip of the feather. On the fourth primary in each wing the spot appears distinctly on the outer web, and from here on the portion of the spot on the outer web becomes larger and more conspicuous, that on the inner web at the same time diminishing until on the proximal true flight feather there is no mark at all on the inner web. The penultimate feather shows a trace of white on the inner web in the right wing, but none in the left, and the last spot is slightly larger in the right wing than in the left, otherwise the markings are exactly alike on the opposite wings.

While these markings have all the characteristics of a normal color pattern there is no known relative of the Cedar Bird with wings spotted in an analogous manner.

THE TERNS OF PENIKESE ISLAND, MASSACHUSETTS.

BY GEORGE H. MACKAY.

"In the lap of sheltering seas
Rests the isle of Penikese."

The Prayer of Agassiz,

JOHN G. WHITTIER.

IF THE reader will glance at the southern portion of a map of New England, it will be seen that there is a string of sixteen

islands extending from southern Massachusetts towards the westward, which are called the Elizabeth Islands. These islands divide the waters between the mainland and the island of Marthas Vineyard. That portion of the ocean at the southward is known as Vineyard Sound, and that to the northward as Buzzards Bay, so named by the early settlers of Dartmouth on the adjoining mainland, it is supposed, from the abundance of the Fish Hawks (*Pandion haliaëtus carolinensis*) formerly found there, these birds being called Buzzardet or little Buzzard in the earlier works on natural history.

It was on the westernmost island of this group that their discoverer, Bartholomew Gosnold, landed in 1602, and built a fort and storehouse, on a small islet in a pond at the western end of the island, which he named Elizabeth, in honor of the English queen of that name. This island, of about five hundred and sixteen acres, is known to the present generation as Cuttyhunk, and by the Indians as *Poocutohhunkunnop*.¹ It was formerly wooded with trees of various kinds. Situated at the entrances of Buzzards Bay and Vineyard Sound, with an altitude of one hundred feet above the sea, it affords one of the finest marine views to be obtained on the coast.

A little less than a mile away, in a north-northeast direction, is another small island of about seventy-five acres of upland, with an elevation of eighty feet, and formerly covered with cedars, none of which now remain. This island was named Hills Hap, by Gosnold, and from which he is said to have taken a canoe which he carried to England on his return. Locally this island was sometimes called *Pune*, but is known to the outside world as *Penikese*, which last name is spelled in quite a variety of ways. Nearly a mile from Penikese in an easterly direction is a gravelly shoal called Gull Island, and still farther away in the same direction lies Nashawena Island, which is distant a little over two miles, and on the southeast end of which, at Fox Point, a few Terns are said to breed. This at present treeless island is about three and a half miles long by one and a half miles wide, and contains about twenty-five hundred acres.

¹ I have availed myself of Ricketson's History of New Bedford for several references.

To convey a better idea of the status of the Terns domiciled on Penikese Island, it may, perhaps, be well to refer to its history during the past fifty years, in order that the reader may know with what persistency these birds have retained their love of home, notwithstanding the trying ordeals they have been subjected to during this period. Considering that the island is small, and composed of two elevated portions connected by a stony beach, with little or no sheltering verdure for the concealment of their eggs or young, the hard green turf being kept closely fed by over one hundred sheep, it was not without surprise that I witnessed the perseverance of these birds.

It would appear that about fifty years ago Charles Gifford inherited Penikese Island from his father; he sold it to Captain John Flanders, a pilot of Marthas Vineyard, who in turn sold it to Captain Beriah Manchester, master of a whaling vessel, who after keeping it about six or seven years, sold it to Mr. John Anderson, of New York, who built a large addition at the southern side of the old Flanders house and connected it with an annex built by Captain Manchester. This house at present is nearly surrounded by the only trees (large-toothed poplar, *Populus grandidentata*, and red maple, *Acer rubrum*) growing on the island, they having been introduced there. They have reached a medium height, but are doing only fairly well, the struggle for existence apparently being severe. Mr. Anderson had used Penikese Island as a summer home for four or five years, when Professor Louis Agassiz of Cambridge, Mass., was in quest of a location for a school of natural history. It resulted in Mr. Anderson's presenting the island, in March, 1873, together with an endowment of fifty thousand dollars, to Professor Agassiz for this purpose. The gift was coupled with the condition that in case the school should ever be abandoned the island should revert again to Mr. Anderson. The school was continued until the death of the senior Agassiz, and for about a year afterwards, under the supervision of his son, when it was given up, and Mr. Anderson consequently again came into possession of Penikese. After Mr. Anderson's death, his executors sold it to Mr. McGroughey of New York City and Messrs. George S. and F. A. Homer of New Bedford, Mass., who held it in common for about five years, at

which time the Messrs. Homer purchased the interest of the former and now own the entire island. There was a serious fire in 1891 which destroyed all the school buildings, so that at present there remains only a barn, and the original dwelling house.

In 1850 a Menhaden Fishery was established on the east side of the island, which was abandoned about two years afterwards.

Ever since the earliest recollection, the Terns of Penikese and Gull Islands have been returning year after year to breed, notwithstanding that during this entire period (with the possible exception of those years during which the island was occupied by the School of Natural History, and of which I have no information) they have annually been unmercifully robbed of their eggs. As a sample story of what has taken place *this* year, 1896, I quote the following, told to Mr. Howe by a resident of Cuttyhunk Island: "I took in *one day* in June, 1896, *one hundred and eighty-two eggs*; a friend of mine gathered *two hundred and ninety-five* in *one day*, and for the season *nine hundred*. The Portuguese fishermen who frequent Penikese harbor carry them off by the bucket full, as do other persons, during the season." There are laws on the statute books of this State for the protection of these Terns and their eggs, but who is there to *execute* them?

As far back as Flanders's time (and undoubtedly earlier) he established a local custom, which seems to have been observed ever since, that anyone might take eggs up to June 10, after which date the Terns were permitted to lay and hatch their eggs. The birds undoubtedly availed themselves of this favor and have thereby preserved their present status. These conditions have existed for certainly fifty years, and it seems difficult to understand why under such circumstances these Terns should still continue to frequent these islands in such numbers as to preclude correct estimates of them. I should guess, however, that there may be six or seven thousand birds domiciled there, a number much less than are at present living in Muskeget Island waters. My old friend, Dr. Thomas M. Brewer, who passed a week on Penikese in August, 1873, estimated that, inclusive of the young birds, there were about one thousand Terns on the southern portions of the island.

On becoming convinced that a large colony still existed on Penikese and Gull Islands, I determined to visit it, if the necessary permission could be obtained. This permission the owners, the Messrs. Homer, kindly granted, and offered me every facility for carrying out my plans. These plans I communicated to my friend, Mr. Reginald Heber Howe, Jr., a fellow-member of the Nuttall Ornithological Club, who had agreed to accompany and aid me in the investigation, and whose help I desire to here gratefully acknowledge. We visited and remained on Penikese and Gull Islands June 15 and 16, 1896, checking off and examining every nest and egg we were able to discover; a condensed report of which work is here furnished. It will no doubt surprise the reader, as it did us, when we remember that up to June 10 about all the eggs that were considered good had been taken for food purposes. Next year I hope to see more favorable conditions prevail, and that these beautiful birds will be better protected.

During our observations on Penikese I noted that in a very large number of instances even the apology of the few straws for a nest to keep the clutch of eggs together were wanting. I also noticed that every little depression in the sward, as also any shallow, saucer-like hollows on the boulders, or at their bases, were utilized by the Terns to deposit eggs in, that they might not be rolled away, the sward being so hard that the birds were unable to excavate an artificial hollow for their reception. At several places on the island some fence rails had been carelessly thrown down on the ground, and even the spaces between them had been made use of by both *Sterna hirundo* and *Sterna dougalli* as nesting sites. To me it was a new experience to see these birds, so essentially of the beaches and sands, alighting upon and walking about over what was to all intents and purposes an elevated and close cut lawn.

Neither Mr. Howe nor myself observed a chipped egg or a chick during our visit, which is what might be anticipated under the local custom of taking the eggs till June 10.

The considerably larger portion of the Terns domiciled on Penikese Island are Wilson's; with them, mixed indiscriminately, are a goodly number of Roseates, breeding. I failed in detecting the presence of the Arctic Tern (*Sterna paradisæa*). Gull Island

would seem to be better adapted for their breeding purposes; while there I shot a number of dark breasted birds in the hopes that some of them might prove to be *S. paradisæa*, but they were all Wilson's.

As stated, Penikese Island is composed of two parts connected by a stony beach; the southeast portion is called the neck, while the other is the main island. Thinking there might possibly be some future advantage in keeping the account of the nests and eggs found on each, separate, I have so arranged them, and also those found on Gull Island. All the eggs observed were normal, there being nothing unusual to record.

<i>Main Island.</i>				PENIKES.				<i>Neck.</i>			
130 Nests of 1 egg each, in all 130 eggs				130 Nests of 1 egg each, in all 130 eggs				135 Nests of 1 egg each, in all 135 eggs			
386	"	2 eggs each,	"	772	"	308	"	2 eggs each,	"	616	"
228	"	3	"	684	"	208	"	3	"	624	"
6	"	4	"	24	"	5	"	4	"	20	"
7	"	5	"	35	"	3	"	5	"	15	"
Vagrant eggs			35	"	Vagrant eggs			9	"		
<hr/>				<hr/>				<hr/>			
757				1680				659			
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								1419			

slightly smaller than it was fifty years ago. A third of the island, on its northern side, is fairly well covered with coarse herbage and beach grass (*Ammophila arundinacea*). It is on this shoal that a little colony of about one hundred and fifty Roseate Terns (*S. dougalli*) and a few Wilson's (*S. hirundo*) are domiciled. Mr. Frederick S. Allen, who has been a resident on Cuttyhunk for fifty-four years, informs me that when he was a boy "the Terns were more abundant on Gull Island than on Penikese, to which island they extended to breed." He also thinks "there are as many Terns at the present time as formerly; cannot perceive any difference in their numbers." It nevertheless appears to the writer as unlikely, from the size of Gull Island, etc., that it could ever have furnished breeding quarters for more than a few hundred birds.

The first eggs were noted on Penikese Island in 1892 on May 20. In 1893 the Terns arrived May 10, in the night, an advance guard of several hundred being noted early the following morning at daylight; these all left before noon of the 11th, and on the morning of the 12th, before daylight, immense numbers had again arrived. In 1894 the advance guard arrived on the night of May 7. In 1895 the first eggs were noted on May 24. In 1896 the Terns commenced to arrive during the night of May 9; they were in evidence at daylight on the 10th, and continued to arrive all day, and on the morning of the 11th the usual colony had taken possession of the island. I am informed that the Terns had considerably diminished in numbers on Penikese by August 28, and that the young birds were all in the air and able to care for themselves; that after September 1 there were but few birds left, and that by the 17th all had departed. It was thought that those remaining the longer time did so in order to care for a few mutilated young birds that needed aid. These maimed young having been killed, the old birds departed as above. A goodly number of young birds were raised this season, as the owners of the island inform me that they did not allow them to be molested.